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ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
JANUARY 4, 1996, 9:00 A.M.
EXECUTIVE CONFERENCE ROOM

Present:	R. A. Welke	T. A. Coleman	G. D. Taylor
	C. Roberts	J. W. Reincke	K. Ferguson (P. F. Miller)
	C. T. Maki	J. D. O'Doherty	G. Kavalaris (D. VandenBerg)
	C. J. Arnold	L. R. Brown	J. Kanillopoolas (R. Maki)
	T. Fort (FHWA)		
Guest:	W. C. Turner	M. Van Port Fleet	D. L. Smiley
	L. Galehouse		

OLD BUSINESS

1. **Approval of the Minutes of the November 2, 1995, Meeting - R. A. Welke**

   Minutes of the November 2, 1995, meeting were approved as written. (The scheduled December 7, 1995, meeting was cancelled.)

NEW BUSINESS

1. **Concrete Pavement Designs - C. J. Arnold/W. C. Turner**

   The Pavement Selection Review Committee (PSRC) and the Rigid Pavement Committee (Kelsch Committee) were charged with reviewing department concrete pavement designs. This effort included a multi-state pavement tour of Illinois, Wisconsin, and Minnesota concrete pavements. In addition, partnering efforts were initiated with the concrete industry to gain their insight on MDOT concrete designs, and what changes were appropriate and desirable.

   A review of state DOTs' design standards and field operations revealed the following practices:

   A. All three states are using plain concrete as a standard design. The exception is in the Chicago area where Illinois DOT is continuing to use continuously reinforced concrete (CRC).
   B. A 14 foot right lane striped at 12 feet with a bituminous shoulder is a standard design.
   C. Jointed reinforced concrete pavement (JRCP) is not a standard design in all three states, and existing standards include:

- Minnesota (MinnDOT) standards call jointed plain concrete pavement (JPCP) with joint spacing ranging from 14 to 20 feet. MinnDOT uses skewed joints and a constant joint spacing, depending on slab thickness.
- Wisconsin standards require JPCP with variable skewed joints, with spacings in series of four (13', 18', 14', 17; 13', 18', 14', 17', etc.).
- Illinois standards call for plain concrete with a hinge joint design that is installed perpendicular to the centerline. Contraction and/or expansion are every 45 feet, but have hinge joints every 15 feet. Load transfer is provided at the hinge joints.

D. Partnering sessions with the concrete paving industry revealed that JPCP with joint spacing around 15 feet is a frequent choice and is a standard concrete design used by 40 or more DOTs around the country.

- All states in Region Five have a short jointed plain concrete as a standard, except Michigan. Minnesota used reinforced concrete with 27 foot joints until the mid 1980s and found that short jointed plain concrete was a better design.
- JPCP has consistently performed better than reinforced slabs in varying climate conditions. Mid-panel cracking is minimized because plain concrete pavements are jointed at much shorter spacing. All joints have load transfer devices. Crack faulting is also greatly reduced because random cracking is minimized with the shorter joint spacing.

Several issues were identified that needed review by the committees. These included: JPCP versus JRCP, 12 foot right lane versus 14 foot right lane, freeway shoulders, cost effectiveness of the pavement section, dowel bar inserters and open graded bases. The committee's recommendations included the following:

A. Jointed Plain Concrete Pavement

MDOT should gradually move toward JPCP with short joint spacing. Joints should be perpendicular to centerline and spaced at a constant spacing ranging from 14 to 16 feet. Joint spacing varies based on slab thickness. JPCP would continue to be classified as experimental. The committees recommend EOC approve an additional 100 lane miles of JPCP (200 lane miles total). MDOT would monitor JPCP sections to determine section performance over time.

B. 14 Foot Right Lane

A 14 foot right lane, striped at 12 feet, be established as a standard to provide edge support for heavy commercial wheel loadings in the right lane. (Note: The additional 2 feet of concrete would function as part of the necessary 10 foot paved shoulder.) The remaining 8 feet of shoulder would be either 5 in. bituminous or 7 in. plain concrete. The design provides the necessary support for truck loadings, without requiring a full depth shoulder.

C. Standard 27 Foot Jointed Reinforced Concrete Pavement

Reinforced concrete pavement remain the department standard at this time. However, 41 foot joint spacing should be eliminated and 27 foot joint spacing would be standard for all reinforced pavement situations. In this situation, bituminous shoulders will be the standard.

D. Freeway Shoulders

The committees propose that freeway shoulders, consisting of a 5 in. bituminous or 7 in. plain tied concrete, continue to be allowed when the mainline pavement type is JPCP. The joint spacing would be the same for the mainline and shoulder pavements when the concrete shoulder option is chosen. This would eliminate the situation that causes induced cracking from the shoulder to the mainline slab.

E. Shoulder Designs in High Traffic Locations

The committees reached a consensus that full depth shoulders should still be required when maintaining traffic is a major concern for future rehabilitation projects. This would be done at the discretion of the Pavement Selection Review Committee.

F. Dowel Bar Inserters

The committees recommend that EOC allow the use of dowel bar inserters on an experimental basis, at the discretion of the Pavement Selection Review Committee.

ACTION: EOC approved the proposed recommendations, as presented. The committee agreed that future consideration must be given to the development of a policy plan to construct, rehabilitate and maintain pavements at a reduced cost.

2. **Hot-in-Place Bituminous Recycling - J. D. O'Doherty/L. Galehouse**

During the 1995 construction season, an experimental project, US-31 north of Muskegon, was selected to gain experience in the application and performance of hot-in-place bituminous recycling. The advantages associated with this new technology include the easy pull-on/pull-off of equipment operation when needed and field operations are environmentally more compatible. Cost for hot-in-place bituminous recycling, in comparison to a similar mill/resurface project, is approximately $60,000 more expensive. However, the potential for application of this new technology is good and it is expected that future costs will decrease as we gain additional field experience.

John O'Doherty requested approval of additional projects to be undertaken on an experimental basis until more experience is gained with this new technology.

ACTION: EOC approved the request with the stipulation that one project be identified for the FY96 construction season as experimental, giving us one more year of evaluation.

3. **Construction of M-20 - T. A. Coleman**

The design and construction of the M-20 widening from Summerton Road to east of County Line Road in Isabella County included the installation of approximately 18,300 meters (60,000 feet) of perforated polyethylene sewer pipe. Special provisions in the project required that 95 percent density be obtained within the pipe trench. The pipe is located just below the ditch line with 1 to 2 meters of cover, outside the influence of the road.

ACTION: The Design and Materials and Technology Divisions are requested to review the density requirements to determine if changes are warranted for upcoming M-20 projects and the standard specifications.

4. **Documentation of Issues Presented to EOC for Consideration - C. Roberts**

The EOC agenda involves major issues that may have a significant impact(s) on departmental policies, procedures and operations. As such, the documentation and background material can be quite extensive. In an effort to expedite the meeting agenda in the most timely manner, it is recommended the package of material submitted for agenda items include a summary sheet that briefly describes the issue, investigations, proposed resolutions, recommendation and be approved as standard operating procedures for the EOC (see Attachment A).

ACTION: EOC approved the recommendation for the documentation of materials for issues presented for EOC consideration.

5. **FHWA Guardrail Ending Mandate Update - J. Kanillopoolas**

Districts 1, 2, 3 and 6 reported few locations, which the districts have committed to do with their own money and personnel. Locations for District 4 will be included with proposed Weathering Steel/Type A Replacement projects that have been programmed and initiated. Construction projects for Districts 5, 8 and 9 have been programmed and initiated. Design work will be provided by district personnel for 5 and 8. Blunt ends and unattached to bridge railing locations in District 9 will be included with proposed impact attenuator projects designed by Traffic and Safety personnel. District 7 is currently being evaluated to determine if the upgrade can be completed by Maintenance personnel (work order process), or if the work should be done by contract. The above work will be completed and/or under contract by September 1996.

A memo from R. A. Welke, directing the implementation of the new guardrail ending treatment has been sent to Construction, Maintenance, and District Engineers (dated December 11, 1995). Construction is in the process of implementing the mandate on projects that were let prior to November 1995, but will not be constructed until 1996. Maintenance is currently ordering the new endings and should be able to start using the new system for repairs in January/February. Additional information regarding purchasing sources has been requested from the manufacturer and should be available in the near future. There is considerable confusion regarding the implementation of the mandate. To date, no division or individual has been designated to coordinate this effort.

Training for the SRT and four other guardrail endings, which are being proposed for use on the trunklines in Michigan, will be provided by the manufacturers. It is proposed that this training will commence in mid-February and be completed by April. This training will be provided to department personnel from the Construction, Maintenance, and Traffic and Safety Divisions. Contract maintenance personnel from county and private contractors will be invited to attend. Prime and subcontractors doing business in Michigan will be included. The concept is to train a few individuals from each project office, maintenance facility, county agency and contractors, who in turn will provide training to the other affected personnel in their respective locations (i.e. train the trainers). It is estimated that approximately 700 people will attend these training classes. The proposed training is currently being coordinated by Construction, Maintenance and Traffic and Safety.

6. **Mobilization - R. A. Welke**

Background Information: As presented in the October 5, 1995, minutes, the EOC approved the following recommendations for limiting the unit price for the pay item "Mobilization":

A. For projects up to $4 million: The unit price may be up to five percent of the total project, but cannot exceed $120,000.
B. For projects over $4 million: The unit price may be up to three percent of the total project, but cannot exceed $600,000. The Design Division was requested to send this recommendation to the Michigan Road Builders Association for their review and comment.

R. A. Welke discussed conversations he had with industry contractors and the letter received from the Michigan Road Builders Association regarding the issue of mobilization cost as a pay item in the contractual process (see attached letter dated December 15, 1995. The industry concerns are centered around the requirement that based on the nature and complexity of a construction project, the mobilization cost may vary from five to seven percent for the job.

7. **District Engineer Representative for 1996 - R. A. Welke**

Each year a district engineer is appointed to serve on the EOC for the calendar year. C. Thomas Maki was announced as the new district engineer representative and welcomed to the committee. The committee acknowledges and thanks Larry Brown for his service to the committee during the past year.

(Signed Copy on File at M&T)
Calvin Roberts, Secretary
Engineering Operations Committee

Attachments

cc: EOC Members
District Engineers

G. H. Grove	R. J. Risser, Jr.	L. K. Heinig	T. Adams
E. D. Winkler	D. L. Coleman	W. C. Turner	D. L. Smiley
L. W. Martin	J. Becsey	R. W. Muller	R. E. Nordlund
L. E. DeFrain	G. L. Mitchell	G. J. Bukoski	C. W. Whiteside
I. B. Patel	R. D. Till	M. Newman	A. G. Ostensen
S. Bower			